

Q3(S): Remaining Symbols by Cancel

$$1) \Gamma^1_{22} = -\frac{1}{2} g^{11} \partial_1 g_{22}, \quad - (1)$$

$$g^{11} = e^{-2\beta}, \quad g_{22} = r^2,$$

$$\Gamma^1_{22} = -r e^{-2\beta} \quad \checkmark \checkmark \quad - (2)$$

$$2) \Gamma^1_{33} = \frac{1}{2} g^{11} \partial_1 g_{33} \quad - (3)$$

$$\Gamma^1_{33} = -r e^{-2\beta} \sin^2 \theta \quad - (4) \quad \checkmark$$

$$3) \Gamma^2_{33} = -\frac{1}{2} g^{22} \partial_2 g_{33} \\ = -\frac{1}{2} \frac{1}{r^2} \frac{d}{d\theta} (r^2 \sin^2 \theta)$$

$$\Gamma^2_{33} = -\sin \theta \cos \theta \quad - (5) \quad \checkmark \checkmark$$

$$4) \Gamma^3_{23} = \frac{1}{2} g^{33} \partial_3 g_{33} \\ = \frac{1}{2} \frac{1}{r^2 \sin^2 \theta} \frac{d}{d\theta} (r^2 \sin^2 \theta)$$

$$\Gamma^3_{23} = \frac{\cos \theta}{\sin \theta} \quad \checkmark \checkmark$$

Dimensional properties due to spherical polar coordinate system.